CLAIMS

What is claimed is:

1.   A robot comprising:

a motion unit;

an infrared sensor including an infrared light source to produce pulses of infrared light, optics to focus reflections from the infrared light pulses from different portions of the environment of the robot to different detectors in a 2D array of detectors, the detectors producing indications of distances to the closest object in an associated portion of the environment; and

a processor to receive the indications from the infrared sensor, determine a feature in the environment and control the motion unit to avoid the feature.

2.   The robot of claim 1, wherein the indication is produced by measuring a period of time to receive a reflected pulse.

3.   The robot of claim 1, wherein the indication is produced by measuring an energy of a reflected pulse up to a cutoff time.

4.   The robot of claim 1, wherein the feature is indicated in an internal map.

5.   The robot of claim 1, wherein the feature is a step.

6.   The robot of claim 1, wherein the feature is an object in a room.

7.   The robot of claim 1, wherein the robot is a robot cleaner.

8.   A method comprising:

producing pulses of infrared light;

focusing reflections from the infrared light pulse from different portions of the environment of a robot to different detectors in a 2D array of detectors;

producing indications of the distances to the closest object in an associated portion of the environment using the detectors; and

using the indications from the infrared sensor to determine a feature in the environment so that the robot can be controlled to avoid the feature.

9.   The method of claim 8, wherein the indication is produced by measuring the time to receive a reflected pulse.

10.   The method of claim 8, wherein the indication is produced by measuring the energy of a reflected pulse up to a cutoff time.

11.   The method of claim 8, wherein the feature is indicated in an internal map.

12.   The method of claim 8, wherein the feature is a step.

13.   The method of claim 8, wherein the feature is an object in a room.

14.   The method of claim 8, wherein the robot is a robot cleaner.

15.   A robot comprising:
       a motion unit;
       a sensor producing multiple indications of distances to the closest object in an associated portion of the environment; and
       a processor to receive the indications from the sensor, determine a feature in the environment and control the motion unit to avoid the feature.

16.   The robot of claim 15, wherein the indications are produced by measuring a period of time to receive a reflected pulse.

17.   The robot of claim 15, wherein the indications are produced by measuring an energy of a reflected pulse up to a cutoff time.

18.   The robot of claim 15, wherein the feature is indicated in an internal map.

19.   The robot of claim 15, wherein the feature is a step.

20.   The robot of claim 15, wherein the feature is an object in a room.

21.   The robot of claim 15, wherein the robot is a robot cleaner.

22.   The robot of claim 15, wherein the sensor is an infrared sensor

23.   The robot of claim 22, wherein the infared sensor includes an infrared light source to produce pulses of infrared light, optics to focus reflections from the infrared light pulses from different portions of the environment of the robot to different detectors in a 2D array of detectors, the detectors producing indications of distances to the closest object in an associated portion of the environment.

24.   A method comprising:
       producing pulses of light;
       using the light to produce indications of the distances to the closest objects in an portions of the environment; and
       using the indications from the infrared sensor to determine a feature in the environment so that the robot can be controlled to avoid the feature.

25.   The method of claim 24 wherein the light is infrared light

26.   The method of claim 24, wherein the indications are produced by measuring the time to receive a reflected pulse.

27.   The method of claim 24, wherein the indications are produced by measuring the energy of a reflected pulse up to a cutoff time.

28.   The method of claim 24, wherein the feature is indicated in an internal map.

29.   The method of claim 24, wherein the feature is a step.

30.   The method of claim 24, wherein the feature is an object in a room.

31.   The method of claim 24, wherein the robot is a robot cleaner.

32.   The method of claim 24, wherein the sensor is an infrared sensor

33.   The method of claim 32, wherein the infared sensor includes an infrared light source to produce pulses of infrared light, optics to focus reflections from the infrared light pulses from different portions of the environment of the robot to different detectors in a 2D array of detectors, the detectors producing indications of distances to the closest object in an associated portion of the environment.